

CLAIMS

1. Hydrocarbon hydroconversion catalyst, consisting of a medium with a base of at least one refractory oxide, at least one metal of group VIII and at least one metal of group VIB on the Period Table of the Elements, characterized in that it has at least one organic compound with at least one oxime group of the formula:



(I)

where R_1 is chosen from among hydrogen, the alkyl, allyl, aryl, alkenyl or cycloaliphatic groups, and the combinations thereof, and these groups could potentially be substituted by at least one electron donor group.

2. Catalyst characterized in that the organic compound is the result of the reaction of an amine of formula (II) below



in which R_1 is chosen from among the hydrogen atom, the alkyl, allyl, aryl, alkenyl or cycloaliphatic groups, and the combinations thereof, and these groups can be substituted by electron donor groups, with a carbonyl compound of formula (III) below



where R_3 and R_4 , which are either identical to or different from one another, are chosen from among hydrogen, for only one of them, linear, ramified or cyclic hydrocarbon groups of the alkyl, aryl, allyl or alkenyl type, and the combinations thereof, which could potentially be substituted by electron donor groups.

3. Catalyst described in claim 2, characterized in that the amine of formula (II) is hydroxylamine.

4. Catalyst described in claim 2, characterized in that the carbonyl compound of formula (III) is chosen from among the carbonyl compounds that are naturally present in a hydrocarbon that is the result of the distillation of crude oil, or ketones and aldehydes.

5. Catalyst described in any of claims 1 through 4, characterized in that said organic compound has a principal carbonaceous chain of 1 to 40 carbon atoms that is linear, ramified or partially or completely cyclic, that could potentially be interrupted by heteroatoms chosen from among sulfur, nitrogen or oxygen, and the carbon atoms could be substituted by hydrogen, alkyl or aryl groups, at least one oxime group and potentially other oxime groups, and/or at least one hydroxyl, sulfide and polysulfide group, a thiol, thioacid, thioether and thioester group, sulfone and sulfoxide groups, amine, amide and imine groups, carboxyl, ether and ester groups, ketone and aldehyde groups, nitrate groups, phosphines and any other group with free electron pairs.

6. Catalyst described in any of claims 1 through 5, characterized in that the organic compound includes a single oxime group.

7. Catalyst described in claim 6, characterized in that the organic compound is chosen from among the alkyloximes, alkenyloximes, allyloximes,

aryloximes and the combinations thereof, alkanoneoximes, cycloalkyloximes, alkanaloximes and benzaldehyde oximes, which may or may not be substituted by alkyl, aryl, arylalkyl and alkylaryl groups.

8. Catalyst described in claim 7, characterized in that the organic compound is chosen from the group consisting of 2-octanone oxime, 3-heptanone oxime, tricosanone oxime, heptanone oxime, phenyldodecanone oxime, 1,3-diphenylacetone oxime, benzophenone oxime, 2-phenylcyclohexanone oxime, fluorenone oxime, dimethylbenzaldehyde oxime, benzaldoxime, acetophenone oxime, methylphenanthryloxime, 2 methyl-benzaldehyde oxime, cyclooctanone oxime, 2-phenylcyclohexanone oxime, o-ethylhexanone oxime, isobutyraldehyde oxime and acetone oxime.

9. Catalyst described in any of claims 1 to 5, characterized in that the organic compound includes one oxime group and at least one second group with free electron pairs.

10. Catalyst described in claim 9, characterized in that said organic compound has at least two oxime groups.

11. Catalyst described in claim 10, characterized in that said organic compound is chosen from among the dioximes and polyoximes comprising the alkyl, aryl, alkylaryl and arylalkyl groups.

12. Catalyst described in claim 11, characterized in that said organic compound is chosen from among glyoxime, monoalkylglyoximes, dialkyloximes and polyoximes with carbonaceous chains including 1 to 10 carbon atoms that tolerate hydrogen and the alkyl, aryl, alkylaryl and arylalkyl groups.

13. Catalyst described in claim 12, characterized in that said compound is dimethylglyoxime.

14. Catalyst described in claim 9, characterized in that the second group with a free electron pair is chosen from among the hydroxyl, sulfide and polysulfide groups, the thiol, thioacid, thioether and thioester groups, the sulfone and sulfoxide groups, the amine, amide and imine groups, the carboxyl, carbonyl, ether and ester groups, the ketone and aldehyde groups, the nitrate groups and phosphines.

15. Catalyst described in claim 14, characterized in that the organic compound is chosen from among mercaptoalkane oximes, alkoxybenzaldehyde oximes, alkoxyarylbenzaldehyde oximes, nitrobenzaldehyde oximes and alkoxybenzaldehyde oximes, hydroxybenzaldehyde oximes, alkoxybenzophenone oximes, substituted carboxaldehyde oximes, nitroarylcane oximes, aminobenzaldehyde oximes, benzamide oximes, substituted acetyl oximes, acetyl-furan, acetyl-thiophene and acetyl-pyridine oximes, hydroxyalcanol oximes, amidooximes, acetophenone oximes, oxime hydrazones or polyalcanol oximes, and these groups could potentially be substituted by alkyl, aryl, arylalkyl, alkylaryl, pyridinyl, thiophenyl and furanyl groups, sulfides, alcoxyls, amines, cyanides, nitrates and hydroxyls.

16. Catalyst described in claim 15, characterized in that the compound is chosen from among d-galactose oxime, benzamide oxime, benzyl oxime hydrazone, benzoichydrazide oxime, ethyl-2-oxobutyrate-2-oxime, isatine-3-oxime, ethyl(hydroxyimino)cyano-acetate, di-2-pyridylketone oxime, benzamide oxime, hydroxypentanal oxime, 4-pyridylamidooxime, nitrobenzaldehyde oxime,

methoxybenzophenone oxime, hydroxybenzaldehyde oxime, dimethylaminobenzaldehyde oxime, 2-acetylpyridine oxime, 4-hexadecyloxybenzaldehyde oxime, methylthioacetaloxime, dimethoxy-nitrobenzaldehyde oxime, methoxyacetophenone oxime, methylbenzamide oxime, thiophenecarboxaldehyde oxime, acetyl-thiophene oxime, aminobenzophenone oxime, acetyl(methyl)thiophene oxime, 2-(4-methoxyphenyl)glyoxal-1 oxime, 1-mercapto-propane-2-oxime, aminophenylethane oxime, (octyloxyphenyl)phenyl-methanone, acetylfurane oxime, acetonaftoquinone oxime, 4-methoxy-3-nitro-benzaldehyde oxime, ethoxybenzaldehyde oxime, methoxybenzaldehyde oxime, 2-(4-methoxyphenyl)glyoxal 1-oxime, 1-mercapto-propan2-one oxime, 1-(3-nitrophenyl) ethanone oxime, phenanthrene quinine-9-oxime, o-(4-nitrophenyl)acetone oxime, isatine-3-oxime.

17. Catalyst described in any of claims 1 through 16, characterized in that it includes at least 0.001 mole of said organic compound per mole of metal from groups VIB and VIII.

18. Catalyst described in claim 17, characterized in that it includes from 0.001 to 10 moles of said organic compound.

19. Process for preparing the catalyst described in any of claims 1 through 18, characterized in that said organic compound, diluted in a solvent, preferably in a hydrocarbon mixture, is put in contact with the catalyst in a medium of a base of at least one refractory oxide, at least one metal of group VIII and at least one metal of group VIB.

20. Process described in claim 19, characterized in that said organic compound is a synthesized compound, obtained by reacting a carbonyl compound

of formula (III), which may or may not be contained in the hydrocarbons being processed, with an amine of formula (II), by maintaining the mixture at a temperature between room temperature and 100° C, under pressure that is at least equal to atmospheric pressure.

21. Process described in either of claims 19 or 20, characterized in that said organic compound is prepared *in situ* in the hydroconversion reactor, in the hydrocarbons being processed.

22. Process described in either of claims 19 or 20, characterized in that the organic compound is prepared *ex situ*, and then deposited or impregnated on the catalyst.

23. Use of the catalyst described in claims 1 through 18, in a hydrocarbon hydrotreatment and/or hydrocracking process, after *in situ* or *ex situ* sulfidation of said catalyst using at least one sulfide compound chosen from among hydrogen sulfide, sulfur, CS₂, mercaptans, sulfides and/or polysulfides or hydrocarbon fractions with a boiling point of less than 400° C, containing sulfur compounds, or other compounds with a sulfidizing effect, and this compound is introduced in the form of a gas or in diluted form in a solvent, or as an additive of the load being converted.